The Usefulness of Fair Values in Improving the Predictive Ability of Earnings: Evidence from International Banks

Abstract

One of the objectives of general-purpose financial reporting is to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions. The current focus on potentially increased relevance of fair value accounting weighed against issues of reliability has failed to consider the potential impact on the predictive ability of accounting. Based on a sample of international (non-U.S.) banks from 24 countries during 2009-2012, we test the usefulness of fair values in improving the predictive ability of earnings. First, we find that the increasing use of fair values on balance-sheet financial instruments enhances the ability of current earnings to predict future earnings and cash flows. Second, we provide evidence that the fair value hierarchy classification choices affect the ability of earnings to predict future cash flows and future earnings. More precisely, we find that the non-discretionary fair value component (Level 1 assets) improves the predictability of current earnings whereas the discretionary fair value components (Level 2 and Level 3 assets) weaken the predictive power of earnings. Third, we find a consistent and strong association between factors reflecting country-wide institutional structures and predictive power of fair values based on discretionary measurement inputs (Level 2 and Level 3 assets and liabilities). Our study is timely and relevant. The findings have important implications for standard setters and contribute to the debate on the use of fair value accounting.

1. Introduction

A major feature of International Financial Reporting Standards (IFRS) is the use of fair value accounting for financial assets and liabilities. Since the global financial crisis (GFC), considerable debate has focused on fair value accounting for financial assets in the banking industry (Barth and Landsman, 2010; Landsman, 2007; Laux and Leuz, 2009). The current debate about fair value accounting versus historical cost accounting mainly revolves around the traditional divergence between relevance and reliability. One of the objectives of general-purpose financial reporting, according to the International Accounting Standards Board (IASB) Conceptual Framework, 'is to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions (Paragraph 12, IASB Conceptual Framework)'. The useful and reliable financial information helps investors to assess the amounts, timing and uncertainty of the entity's future cash flows. Proponents of fair value assert that fair values are relevant for financial decision making. Early studies provide supporting evidence that fair value disclosure of financial instruments (Barth, 1994; Petroni and Wahlen, 1995; Eccher *et al.*, 1996; Nelson, 1996; Carroll *et al.*, 2003; Venkatachalam, 1996; Barth, 1991; Amir, 1993) and revalued financial, tangible, and intangible assets are value relevant (Barth and Clinch, 1998; Aboody *et al.*, 1999).

There is a stream of studies that investigates the usefulness of accounting information in forecasting future cash flows. Those studies have concentrated on the relative predicative ability of aggregate earnings and earnings components from non-financial firms (Bowen *et al.*, 1986; Dechow *et al.*, 1998; Subramanyam and Venkatachalam, 2007; Barth *et al.*, 2001; Farshadfar and Monem, 2013; Cheng and Hollie, 2008). However, there are limited studies (Chen *et al.*, 2006; Hill, 2009; Evans *et al.*, 2014; Bratten *et al.*, 2014) that investigate the predictive ability of fair value information for future earnings and cash flows. Proponents of fair value accounting uphold that fair values are capable of predicting future cash flows because they reflect up-to-date market conditions. Also, unrealised gains and losses of certain financial

assets can be converted to realised gains and losses when those financial assets are sold (Bratten *et al.*, 2014). Therefore, the fair values of those financial assets can be linked to the entity's future performance (Evans *et al.*, 2014). Moreover, recent bank-related studies generally confirm that managers use the discretion provided by fair value accounting to smooth earnings (Barth *et al.*, 1995; Hodder *et al.*, 2006; Li and Sloan, 2014) which in turn increases earnings persistence and earnings informativeness (Tucker and Zarowin, 2006).

Critics have concerns about the negative impact of fair value accounting on the ability of earnings to predict future performance. Opponents of fair value accounting argue that accounting estimates based on fair values are more volatile than those based on historical cost (Barth, 1995; Hodder *et al.*, 2006), making it harder to predict future performance. In addition, fair values can be subjectively determined by managers especially when capital markets are illiquid (Level 3 assets). The measurement errors would adversely affect relevance and reliability of discretionary fair values and thereby reduce the ability of earnings to predict future performance. Given the continued debate surrounding the merits of fair value accounting, we investigate whether a bank's exposure to fair value accounting in financial instruments[1] enhances the ability of earnings to predict future cash flows and future earnings.

We also examine the impact of fair value hierarchy classification choices on the ability of earnings to predict future cash flows and future earnings. More precisely, we investigate if the usefulness of fair values in improving the predictive ability of earnings differs between non-discretionary fair value components (Level 1 assets) and discretionary fair value components (Level 2 and Level 3 assets). As part of its response to the GFC and the convergence project between IFRS and the United States (U.S.), in March 2009 the International Accounting Standards Board (IASB) issued *Improving Disclosures about Financial Instruments (Amendments to IFRS 7 Financial Instruments: Disclosures)*. IFRS 7 now requires reporting entities to

[1] We measure the bank's exposure to fair value accounting as the percentage of fair valued financial instruments over total assets. Since a bank's balance sheet consists mostly of financial instruments, this measurement will efficiently capture the banks' on balance-sheet exposure to fair value accounting.

disclose the fair values based on a 'Three-Level' hierarchy in order to provide financial statement users with useful information about valuations, methodologies and the uncertainty associated with fair value measurements. Level 1 and Level 2 measurements[2] include observable and indirectly observable inputs such as quoted prices of identical or comparable assets or liabilities from active markets. However, Level 3 measurements include unobservable inputs computed by using price models or discounted cash flow methodologies or other information reflecting the reporting entity's own assumptions and judgments. Therefore, Level 3 inputs are subject to the highest degree of information asymmetry. Information asymmetry can either enhance or reduce the predictive power of Level 3 assets and liabilities. On the one hand, discretionary fair values could provide irrelevant information for future cash flows if managers use the discretion available under Level 3 assets opportunistically to manipulate earnings. Alternatively, management may use the discretionary fair values (Level 2 and Level 3 assets and liabilities) as a way to signal to investors their expectations about future cash flows, enhancing the predictive power of those accounting information.

Last, we test whether the predictive ability of discretionary fair values (Level 2 and Level 3 assets and liabilities) of banks is associated with the strength of institutional structures. Strong institutional structures will limit insiders' ability to acquire private control benefits which improves the reliability of fair value accounting information. Consequently, the predictive power of those discretionary fair value measurements (Level 2 and Level 3 assets and liabilities) will be enhanced.

Based on a sample of international (non-U.S.) banks from 24 countries during 2009-2012, the findings can be summarised as follows. First, we find that the increasing use of fair values on balance-sheet financial instruments enhances the ability of earnings to predict future earnings and future cash flows (measured as one

[2] The distinctive difference between Level 2 inputs and Level 3 inputs is whether inputs are observable. However, Level 2 fair values are also discretionary, although they are considered to be more reliable than Level 3 assets, because they are determined by indirect inputs such as yield curves, exchange rates and empirical correlations which involves the managerial discretion.

year ahead). Specifically, for banks that report a greater proportion of their financial instruments at fair value, earnings before taxes exhibit a stronger positive association with future earnings and future cash flows. Second, we provide evidence that there is a distinctive difference between non-discretionary fair value (Level 1 assets) and discretionary fair value (Level 2 and Level 3 assets) with respect of their usefulness in improving the predictability of earnings. Specifically, results show that net Level 1 assets enhance earnings persistence and the ability of current earnings to predict future cash flows. Whereas, discretionary fair values based on managerial assumptions (net Level 2 and net Level 3 assets) are found to weaken the predictive power of current earnings with respect to future earnings/cash flows. Third, we find a consistent and strong association between factors reflecting country-wide institutional structures and predictive power of fair values based on discretionary measurement inputs (Level 2 and Level 3 assets and liabilities). We provide evidence that Level 2 and Level 3 assets and liabilities can enhance the ability of earnings to predict future earnings and future cash flows only when institutional structures are strong. These results provide supporting evidence that international institutional factors enhance earnings persistence and the ability of earnings to predict future cash flows in banks.

Our results contribute to the literature in several ways. First, we contribute to the ongoing debate about the merits of a fair value accounting-based reporting system. Prior research has primarily focused on examining the value relevance of fair value estimates. However, those studies do not provide direct evidence on whether fair values improve the predictability of earnings (Barth, 2006). Therefore, this study complements value relevance studies as it provides direct evidence of whether fair value estimates influence the ability of current earnings to predict future performance. Second, there is limited research examining the differences between alternative fair value measurement inputs in terms of their predictive ability for future cash flows and earnings. The results of those studies are mixed. Ehalaiye (2014) provides strong evidence that there is a predictive relationship between Level 1 and Level 2 bank fair values and future operating cash flows. However, the Level 3 fair values of such

banks in most cases were not significantly associated with the banks' future quarterly operating cash flows. In contrast, from a sample of agricultural firms listed on the Australian Stock Exchange (ASX), He *et al.* (2010) find that fair value earnings based on the 'model' (Level 3) has explanatory power while fair value earnings based on the 'market' (Levels 1 and Level 2) has no explanatory power for future cash flows. Our study contributes to the literature by providing further evidence on the differences in the predictive power between alternative fair value measurement inputs from an international context.

Third, we extend prior research on the international institutional factors that influence the financial reporting behavior of banks. Recent studies that examine the association between fair value accounting and the ability of earnings to predict future cash flows/earnings in banks have been undertaken in a specific country context (U.S and Australia)[3]. However, the reliability and accuracy of fair value measurements varies with the liquidity of capital markets. For example, Level 2 and Level 3 assets are generally considered to be less reliable than Level 1 assets given they are subjectively measured based on managerial models and assumptions. We provide additional evidence that international institutional factors enhance the ability of discretionary fair value measurements (Level 2 and Level 3 assets and liabilities) to predict future cash flows and earnings in banks. These results have important implications for standard setters. That is, a fair value based accounting system enhances earnings persistence and the ability to predict future cash flows. Moreover, this study reinforces the evidence (Ball, 2006) already available that adoption of uniform accounting standards, without considering the institutional features, will not be able to significantly improve accounting quality or enhance the usefulness of accounting information.

The reminder of the paper is organised as follows. Section 2 outlines the institutional background. Section 3 reviews relevant prior research and develops

[3] See Chen *et al.* (2006), Hill (2009), He *et al*. (2010), Ehalaiye (2014), Bratten *et al*. (2014) and Evans *et al*. (2013).

hypotheses. Section 4 explains the research design, including the models, measurement of variables and the sample selection procedures. Section 5 presents the analysis of the results while Section 6 provides concluding comments.

2. Institutional Background

The International Accounting Standards Committee (IASC) began its work on financial instruments in 1988 and the subject has remained on the active international standard-setting agenda ever since. The IASC released International Accounting Standard 32 (IAS 32) *Financial Instruments: Disclosure and Presentation* in 1995. This was an initial standard dealing with the presentation and disclosure issues on financial instruments. After a prolonged period of increased effort, IAS 39 *Financial Instruments: Recognition and Measurement* was issued in 1999 to deal with the recognition and other measurement issues that were covered in IAS 32. In 2002, in response to practice issues identified in the IAS 39 implementation guidance process by audit firms, national standard setters, regulators and others, the IASB proposed changes to both IAS 32 and IAS 39. It issued revised versions of those standards in December 2003. In August 2005, the IASB expanded the disclosure aspects of IAS 32 and IAS 39 by issuing IFRS 7 *Financial Instruments: Disclosures*, incorporating the disclosure requirements of FAS 157 in the U.S.

Fair value, under IFRS 13 *Fair Value Measurement*[4] is defined as *'the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.'* The definition emphasizes that fair value is more a market-based measurement than an entity-specific measurement. Thus, fair values may be determined based on the

[4] IFRS 13 seeks to increase consistency and comparability in fair value measurements and related disclosures through a 'fair value hierarchy'. The hierarchy categorises the inputs used in valuation techniques into three levels. The hierarchy gives the highest priority to (unadjusted) quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. [IFRS 13:72]

assumptions that market participants would use in valuing the asset or liability.

As noted, IFRS7 requires reporting entities to disclose fair values based on a Three-Level measurement hierarchy. While Level 1 measurement includes observable inputs such as quoted prices of identical assets or liabilities from active markets, Level 2 measures include indirectly observable inputs such as quoted prices of comparable assets and liabilities from active markets. However, there can be two sub-classes of Level 2 inputs. Ryan (2008, p.29) states: 'The first subclass is quoted market prices from similar assets traded in active markets. These measurements are considered to be less ideal than Level 1 inputs but still reliable as they are based on observable inputs which are less subjective. The second subclass is indirect inputs such as yield curves, exchange rates and empirical correlations. The second subclass input has lower quality than the first subclass of Level 2 inputs but is of higher quality than Level 3 inputs'.

The far less precise Level 3 measures include unobservable inputs computed by using price models or discounted cash flow methodologies or other information reflecting the reporting entity's own assumptions and judgments. These inputs provide greater opportunity for management manipulation, and involve more information risks to financial statement users. The IASB limits the use of Level 3 inputs to those situations when Level 1 and Level 2 measurements are not available.

As fair value estimates based on Level 3 inputs are subject to a lot of estimations, IFRS 7 requires additional disclosures in relation to these assets and liabilities. Specifically, for fair value measurements in Level 3 of the fair value hierarchy, entities need a reconciliation from the beginning balances to the ending balances, disclosing separately changes during the period attributable to the following: (a) total gains or losses for the period recognised in profit or loss, and a description of where they are presented in the statement(s) of profit or loss and other comprehensive income; (b) purchases, sales, issues and settlements (each type of movement disclosed separately); and (c) transfers into or out of Level 3 (for example, transfers attributable to changes in the observability of market data) and the reasons for those transfers. In

addition, for fair value measurements in Level 3, if changing one or more of the inputs to reasonably possible alternative assumptions would change fair value significantly, the entity shall state that fact and disclose the effect of those changes. The entity shall disclose how the effect of a change to a reasonably possible alternative assumption was calculated (Level 3 sensitivity analysis).

Most recently, IFRS 13, *Fair Value Measurement* (IASB, 2011) is proposed as a product of the joint IASB/FASB harmonisation project. This standard has effectively commenced from 1 January 2013 and it replaces the fair value measurement guidance contained in individual IFRSs, including IAS 39, with a single framework for fair value measurement. It also expands and articulates in more detail the concepts and principles behind fair value, including the introduction of new concepts such as the 'principal market' and also general descriptions of valuation approaches and techniques. IFRS 13 also aligns the fair value measurement regime with the FASB's SFAS 157 (including the levels classification of estimation of fair value from level 1- active markets to level 3- based on models), emphasising the harmonisation project between the FASB and the IASB.

3. Literature Review and Hypothesis Development

3.1 Debate about the merits of fair values

There has been a long-lived debate over fair value accounting. The current accounting literature shows that the debate about fair value accounting versus historical cost accounting mainly revolves around the traditional divergence between relevance[5]and reliability. Indeed, early studies primarily focus on the value relevance of fair value instruments (Barth, 1994; Petroni and Wahlen 1995; Barth *et al.*, 1996; Eccher *et al.*, 1996; Nelson 1996; Carroll *et al.*, 2003; Schrand, 1997; Venkatachalam,

[5] Relevance is defined as 'the quality of financial information which exists when that information influences decisions by users about the allocation of scarce resources by: (a) helping them form predictions about the outcomes of past, present or future events; and/or (b) confirming or correcting their past evaluations; and which enables users to assess the rendering of accountability preparers' (Paragraph 5, International Accounting Standards Board (IASB) Conceptual Framework)'.

1996; Barth, 1991; Amir, 1993). These studies generally confirm that fair value disclosures for financial instruments are value relevant. In addition, many papers have examined the market reactions to asset revaluations both in Australia (Barth and Clinch, 1998) and in the United Kingdom (Aboody *et al.*, 1999). The findings suggest revalued financial, tangible, and intangible assets are also value relevant.

Fair value accounting serves as a way of presenting the financial statements in a 'true and fair' way. However, historical cost accounting is often considered a more faithful representation because historical cost earnings are less subject to manipulation (Herrmann *et al.*, 2006). Gains and losses on fair value estimates are based on appraisals or other valuation techniques. These techniques are subject to estimation and therefore provide managers with a tool for managing earnings (Dietrich *et al.*, 2000). Another issue of reliability with fair values arises from measurement uncertainty. The fair value estimate is heavily reliant on valuation estimation models, which may result in intentional or unintentional bias. For example, Benston (2008, p. 106) claimed that 'dishonest and opportunistic CFOs and CEOs are likely to find fair value accounting a boon to their efforts to manipulate reported net income'. Several empirical studies have evidenced deliberate managerial bias in fair value accounting (Dietrich *et al.*, 2000; Hodder *et al.*, 2006; Danbolt and Rees, 2008; Ramanna, 2008). In addition, previous studies have supported the argument that assessing the fair market value involves subjectivity. Hence, a high degree of judgment is required. Martin *et al*. (2006) find that preparers may easily be overconfident in their fair value judgments due to the amount of evidence they collected to develop their estimates. Additionally, there is a tendency for intentional bias in preparers' estimates towards their preferred directions.

3.2 The predictive ability of fair values

Fair values are generally assumed to provide greater predictive value than historical cost measures for several reasons. First, fair values reflect current market conditions and capture the most informed expectations of future cash flows. In other words, the

changes in fair values should reflect the expectations about future cash flows and performance. Many papers have provided empirical evidence that asset revaluations, one use of fair value accounting, are associated with future cash flows and earnings (Barth and Clinch, 1998; Easton *et al.*, 1993, Aboody *et al.*, 1999). For example, based on sample data from UK firms, Aboody *et al.* (1999) find a significant positive relationship between upwards asset revaluations and changes in operating income and cash from operations. Jaggi and Tsui (2001) replicated the research of Aboody *et al.* (1999) using Hong Kong data and find that upward asset revaluation activities were significantly positively associated with firms' future operating performance. This result suggests that firms had incentives to signal good news to potential investors by revaluing their assets to current market value.

Second, proponents of fair value accounting assert that fair values of certain financial assets can help to predict a company's future performance because the fair values impound expectations of future costs and benefits of holding these financial assets. For example, the unrealised gains or losses of those financial assets can be converted into realised cash flows and income when such assets are sold (for example, trading assets and certain derivatives are reported at fair value, with changes in fair value recognised in net income). Consistent with these expectations, Evans *et al.* (2014) investigate whether fair value information for interest-bearing investment securities is associated with future financial performance for a sample of commercial banks and whether the relative strength of this association is reflected in the relation between reported fair values and banks' share prices. They find that banks' accumulated fair value adjustments for investment securities are positively associated with future reported income from investment securities.

The major criticism of fair value accounting is that it introduces higher volatility in the financial statements (Barth *et al.*, 1995 and Hodder *et al.*, 2006). Based on a survey of 401 financial executives, Graham *et al.* (2005) report that 97 percent of respondents express a preference for smooth earnings. Moreover, 80 percent of respondents express the belief that volatile earnings reduce predictive power.

Empirical studies have shown that earnings volatility reduces earnings predictability. For example, Dichev and Tang (2009) investigate the link between earnings volatility and earnings predictability. They find that low-volatility earnings have much higher persistence as compared to high-volatility earnings. They also find that earnings with low volatility have remarkably high persistence and high R-squares during the entire predictive horizon, while earnings with high volatility show quick reversion to the mean and little reliable predictability.

Three U.S. studies examine the predictability of fair values on future cash flows and future earnings. Chen *et al.* (2006) predict that, if increased use of fair value accounting improves cash flow predictability, then a stronger association between current accounting data and future cash flows should be reflected in a higher R-square. However, their results fail to support this hypothesis. They show that, even with fair value requirements in recent standards, the correlation between current accounting numbers and current market data has not improved through time, nor has the correlation between current accounting numbers and future cash flows improved. Moreover, they find that the correlation between market data (in essence, fair value accounting) and future cash flows is significantly *lower* than the correlation between historical cost accounting and future cash flows. In other words, the use of fair value accounting reduces the predictive ability of financial reporting for future cash flows. They conclude that the current focus on potentially increased relevance (see Barth, 1994; Petroni and Wahlen, 1995; Barth *et al.*, 1996; Eccher *et al.*, 1996; Nelson 1996; Carroll *et al.*, 2003; Schrand, 1997; Venkatachalam, 1996; Barth, 1991; Amir, 1993) weighed against issues of reliability has failed to consider the potential impact on the predictive ability of accounting.

Hill (2009) examines how the implementation of SFAS 115 affects the ability of earnings to predict future cash flows. This study finds that fair value adjustments can improve the ability of annual earnings to predict future cash flows. However, the restricted population, time period and fair value application examined in this study limit its generalisability to broader populations, more volatile market conditions, and

more subjective applications of fair value valuation. Bratten *et al.* (2014) examine whether increased use of fair value estimates in financial reporting and the reliability of these estimates impacts the ability of earnings to predict future cash flows and future earnings. Using a sample of publicly traded and privately held bank holding companies, their study provides evidence that the extent of exposure to fair values[6]in financial reporting enhances the ability of earnings to predict future cash flows and future earnings in both public and private banks. They show that earnings under a more fair value-based reporting system are better predictors of future cash flows and future earnings when the reported fair value estimates are more reliable. Given the continued debate surrounding the merits of fair value accounting and conflicting results provided by prior studies, we present the first hypothesis in null form:

Hypothesis 1a: Exposure to fair value accounting is unrelated to the ability of current earnings to predict future cash flows.

Hypothesis 1b: Exposure to fair value accounting is unrelated to the ability of current earnings to predict future earnings.

3.3 The predictive ability of alternative fair value measurement inputs

As the 'fair value hierarchy' was first introduced in the Statement of Financial Accounting Standards No.157 *Fair Value Measurements* (SFAS 157) in 2006, most studies that examine alternative fair value measurement inputs are based on U.S. data. Those studies have concentrated on the value relevance and information risk of fair value estimates. For example, Riedl and Serafeim (201l) document a higher cost of capital for financial institutions with more Level 3 fair valued assets than Level 1 and Level 2 fair valued assets. They also find that the differences in cost of capital across the three levels of fair value assets are smaller for financial institutions which have better information environments. Liao *et al.* (2013) document a positive association between information asymmetry, measured by the bid-ask spread and both fair value

[6] Bretten *et al.* (2014) examine their research questions using two complementary and comprehensive approaches, a balance sheet and an income statement approach, to measure the extent to which fair values are used in financial reporting.

net assets and loan loss provisions during the financial crisis.

There are two competing points of view regarding the predictive ability of Level 1 versus Level 2 and Level 3 inputs. First, those who uphold fair values based on discretionary measurements inputs (Level 2 and Level 3 assets) believe that discretionary fair value estimates can provide incremental power to predict an entity's future performance because management is in the best position to judge the amount, timing and risk of future cash flows (Ronen, 2008). Therefore, discretionary fair value estimates developed by inside managers can be a way of signaling management's expectations of future cash flows (Barth, 2006). Moreover, fair value estimates based on market information (Level 1 assets) can be 'noisy' when capital markets are not perfect or information asymmetry exists (Whittington, 2008).

Second, from an agency theory perspective, measurement error and management bias in the determination of fair values, especially those fair value estimates for which input prices are indirectly observable (Level 2 assets) and unobservable (Level 3 assets), can constrain the ability to predict future operating performance (Landsman, 2007; Barth, 2006). Prior value relevance studies provide indirect evidence that fair value estimates are less likely to predict future performance in the presence of measurement error and bias. For example, Song *et al.* (2010) find that Level 1 fair values are more value relevant than Level 2 and Level 3 fair values. In addition, good corporate governance increases the value relevance of fair values, especially Level 3 fair values. Their study suggests that Level 3 valuations are far less reliable than Level 1 and Level 2 valuations.

There is limited research examining the differences between alternative fair value measurement inputs in terms of their explanatory and predictive power for future cash flows and earnings. Using a sample of U.S. banks from 2008 to 2010, Ehalaiye (2014) provides the strong evidence that there is a predictive relationship between Level 1 and Level 2 bank fair values and future operating cash flows. However, the Level 3 net asset fair values in most cases were not significantly associated with the banks' future quarterly operating cash flows. By contrast, from a sample of agricultural firms

listed on the Australian Stock Exchange (ASX), He *et al.* (2010) find that fair value earnings based on the 'model' (Level 3) has explanatory power while fair value earnings based on the 'market' (Levels 1 and Level 2) has no explanatory power for future cash flows. Furthermore, Bratten *et al.* (2014) show that earnings under a more fair value-based reporting system are better predictors of future cash flows and future earnings when the reported fair value estimates are more reliable. Based on the discussions in this section, we predict that fair values based on direct observable market inputs (Level 1 assets) are more reliable, thus, enhancing the earnings persistence and cash flow predictability. On the other hand, discretionary measurements that involve managerial discretion (Level 2 and Level 3 assets) weaken the predictive ability of current earnings for future cash flows and earnings. Accordingly, we hypothesise that:

Hypothesis 2a: The Level 1 net assets of banks enhance earnings persistence and cash flow predictability.

Hypothesis 2b: The Level 2 and Level 3 net assets of banks weaken earnings persistence and cash flow predictability.

3.4 Institutional factors and the predictive ability of earnings

An emerging literature investigates how institutional factors can affect the actual financial reporting incentives of financial statement preparers (Ball *et al.*, 2000; Ball, *et al.*, 2003; Leuz *et al.*, 2003; Shen and Chih, 2005). This literature suggests that actual reporting behavior is endogenous because actual reporting incentives are determined in conjunction with the country's real economic and political factors. Indeed, the demand for fair value and reliability of financial statements in common law countries can be different from the same demand in code law countries (Ball *et al.*, 2000).[7] The results from LaPorta (1998) provide evidence that countries with English

[7] Ball *et al.* (2006) summarise the distinct institutional features between common law countries and code law countries 'Common law takes its name from the process whereby laws originate and arises from what is commonly accepted to be appropriate practice. Common law originated in England and spread to its former colonies such as US, Canada, Australia, and New Zealand. Whereas, code law also takes its name from the process whereby laws, are 'coded' in the public sector. Code law originated in Continental Europe and spread to the former colonies of Belgium, France, Germany, Italy, Portugal and Spain. Politically powerful stakeholder groups

common law legal systems tend to have: (1) better economic development and stronger capital markets, (2) stronger investor rights and (3) better legal enforcement than code law countries.

The institutional differences between common-law and code-law countries in legal enforcement, economic development and investor protection have been applied in many recent accounting studies. The literature also suggests that institutional factors have a moderating effect on earnings management. For instance, Leuz *et al.* (2003) examine systematic differences in earnings management across 31 countries. They provide evidence that earnings management is decreasing in countries with strong investor protection because strong protection limits insiders' ability to acquire private control benefits, which reduces their incentives to mask firm performance. The results suggest an endogenous link between corporate governance and the quality of reported earnings. Similarly, Shen and Chih (2005) show that more than two-thirds of banks from 48 countries are found to have managed their earnings. In addition, they find that stronger protection of investors and greater transparency in accounting disclosure can reduce banks' incentives to manage earnings. Also, market development, measured by real GDP per capital, decreases the degree of earnings management. Finally, stronger enforcement of laws can result in stronger earnings management. However, this effect appears in low-income countries only, and not in high-income countries. Based on a sample of firms from 42 countries, Francis and Wang (2008) find that earnings quality is higher in countries where investor protection is stronger. Prior research has also provided evidence that strong institutional structures also encourage more timely disclosure and greater transparency (Darrough and Stoughton, 1990; Pagano and Volpin, 2005).

From an agency theory perspective, fair value estimates are less likely to predict future performance in the presence of measurement error and bias (Level 2 and Level 3 valuation inputs). Therefore, we predict that the strong institutional structures help

necessarily are represented in both codifying and implementing rules in code law countries. Unlike code law, common law in its purest form makes standard-setting a private-sector responsibility'.

to increase the transparency and reliability of discretionary fair values (Level 2 and Level 3 assets), which in turn enhances the earnings persistence and cash flow predictability. Accordingly, we hypothesise that:

Hypothesis 3: There is an association between factors reflecting country-wide institutional structures and predictive power of fair values based on discretionary measurement inputs (Level 2 and Level 3 assets and liabilities).

4. Research Design

4.1 Models and measurement of variables

We use the following models (Kanagaretnam *et al.*, 2011; Altamuro and Beatty, 2010) to test the predictive ability of more fair value-based earnings with respect to future earnings and future cash flows:

$$EBT_{t+1} = \alpha + \beta_1 EBT_t + \beta_2 FVE_t + \beta_3 EBT_t * FVE_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

$$CF_{t+1} = \alpha + \beta_1 EBT_t + \beta_2 FVE_t + + \beta_3 EBT_t * FVE_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

In model (1), the dependent variable, EBT_{t+1} is measured as earnings before taxes during the year $t+1$ scaled by total assets at the beginning of the year. In model (2), the dependent variable, *Cash Flows* (CF_{t+1}), is calculated as earnings before taxes and the loan loss provisions during the year t+1 scaled by total assets at the beginning of the year. All independent variables are measured at time *t* to investigate whether current fair values improve the predictive ability of earnings about performance one year in the future. EBT_t is earnings before taxes scaled by total assets at the beginning of the year.

We measure a bank's exposure to fair value accounting (FVE_t) as the sum of net financial instruments recognised or disclosed at fair value divided by total assets. According to IAS 39- *Financial Instruments: Recognition and Measurement*, fair valued financial instruments included in this measurement are financial assets or financial liabilities at fair value through profit or loss, derivatives, loans and

receivables and available for sale financial assets. Although this measurement of fair value exposure (FVE_t) includes some items that are not directly related to current period earnings[8], these items are able to reflect future cash flows and performance. For example, trading securities can help to predict future interest revenue. Also realised and unrealised gains and losses on settlements of derivatives affect reported future earnings. As a result, the earnings of banks that are more exposed to fair value accounting are a better predictor of future cash flows and future earnings.

In models (1) and (2), the coefficient of interest is the coefficient on the interaction variable EBT_t*FVE_t, which is predicted to have a positive sign, consistent with the argument that the extent to which the financial instruments that are measured at fair value enhances earnings persistence and predictability of cash flows in banks.

Using models (3) and (4), we test how the classification of fair values based on non-discretionary inputs (Level 1 net assets) and discretionary measurement inputs (Level 2 and Level 3 net assets) impact individually on the ability of current earnings to predict future earnings and cash flows (measured one year ahead).

$$EBT_{t+1} = \alpha + \beta_1 EBT_t + \beta_2 L1_t + \beta_3 L23_t + \beta_4 L1_t * EBT_t + \beta_5 L23_t * EBT_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots \quad (3)$$

$$CF_{t+1} = \alpha + \beta_1 EBT_t + \beta_2 L1_t + \beta_3 L23_t + \beta_4 L1_t * EBT_t + \beta_5 L23_t * EBT_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots \quad (4)$$

The independent variables in models (3) and (4) are the percentage of net financial instruments valued using Level 1 (*L1*) versus Level 2 and Level 3 inputs (*L23*). Those variables are measured as net Level 1, Level 2 and Level 3 fair value assets (fair values of assets minus fair values of liabilities) scaled by total assets at the beginning of the year. In models (3) and (4), the coefficients of interest are β_4 and β_5, which are predicted to be positive and negative respectively, consistent with the prediction that non-discretionary fair values (Level 1) enhance the ability of earnings to

[8] Some assets are reported at fair value with changes in fair value recognised in net income, e.g., trading assets and certain derivatives. Some assets are measured at fair value with changes in fair value reported in equity, e.g., available-for-sale assets.

predict future performance whereas discretionary fair values (Level 2 and Level 3 assets) weaken the predictability of current earnings.

Last, we investigate if there is an association between factors reflecting country-wide institutional structures and predictive power of fair values based on discretionary measurement inputs (Level 2 and Level 3 assets and liabilities). We repeat the analysis from models (3) and (4) with two sub-samples partitioned by two clusters according to Leuz et al. (2003).

All models are estimated as fixed effects models with year specific dummy variables to control for systematic time period effects and country dummies to provide additional controls for omitted variables. Also, we cluster the standard errors of sample banks to deal with the concerns arising from the use of panel data such as heteroscedasticity or serial correlation.

4.2 Sample selection

The original sample is obtained from the *BANKSCOPE* database, which comprises the top 200 non-U.S. banks worldwide that have adopted IFRS. The reason this study chooses non-U.S. banks is to investigate any institutional factors that may influence the predictability of earnings for future cash flows and future earnings. Previous studies mainly focus on U.S. banks because of the data availability. Studying international banks contributes to the existing literature on international accounting standards adoption.

All entities are mandatorily required to disclose the fair value hierarchy for their fair value measurements under the IFRS 7 - *Financial Instruments: Disclosure*. This study focuses only on the banking industry for the following reasons. Banks normally have significant amounts of fair value assets and liabilities to which IFRS 7 disclosure requirements are applicable. As well, bank's fair value measurements are usually more homogeneous than firms in other industries. Thus, the fair value estimations and fair value hierarchy classification choices can have a substantial direct impact on banks' earnings and their regulatory capital adequacy. In this study, the largest 200

non-U.S. banks are chosen which offers the power to test the hypotheses. Fair value hierarchy disclosure requirements under IFRS 7 are effective for banks from the 1st January, 2009. Therefore, the sample period for this study starts from 2009 until the end of 2012 inclusive[9].

All the financial information of the top 200 international (non-U.S.) banks is downloaded from the *BANKSCOPE* database. Two countries (China and Russia) have been dropped because the institutional variables are not available. The remaining 24 countries are retained for the earnings persistence and cash flow predictability tests. These include Austria, Australia, Belgium, Brazil, Canada, Chile, Germany, Denmark, Spain, Finland, France, UK, Greece, Hong Kong, Ireland, Italy, South Korea, Malaysia, Netherlands, Norway, Sweden, Singapore, Taiwan and South Africa. Each bank's annual IFRS 7 disclosure information for 2009-2012 is hand-collected from their annual reports. Then, bank-year observations with missing values for any of the test variables have been excluded. Finally, observations that fall in the top and bottom 1 percent of variables have been eliminated. The finial sample for tests consists of 552 bank-year observations associated with 138 unique banks from 24 countries. The sample selection procedure is outlined in Panel A of Table 1 while Panel B shows the sample banks by country.

[Insert Table 1]

5. Results

5.1 Descriptive statistics

Table 2 reports the descriptive statistics of variables used in models. The mean annual one year ahead future operating cash flow (CF_{t+1}) amounts to 0.8% of total assets whereas the mean annual one year ahead earnings before taxes (EBT_{t+1}) is approximately 0.4% of total assets. The mean value of fair value exposure (FVE_t) is 0.10 suggesting that as a ratio of total assets, on average approximately 10 percent of

[9] In order to test the explanatory power for at least one-year-ahead cash flows and earnings, observations in 2013 are used as a dependent variable only.

financial instruments are reported at fair value.

Table 2 also shows that fair value amounts under Level 1 inputs account for most fair values. Specifically, on average approximately 7 percent of fair valued financial instruments are classified as Level 1 as a ratio of total assets. Whereas, only 2 percent and 1 percent of fair valued financial instruments are based on Level 2 and Level 3 inputs. The relatively smaller mean of 0.01 for Level 3 compared with the standard deviation (7.2%) shows that there is substantial variation in Level 3 across banks and over the years.

[Insert Table 2]

Table 3 represents a summary of institutional characteristics of sample banks. Eight sample countries are common law countries (Australia, Canada, Hong Kong, UK, Ireland, Singapore, Malaysia and South Africa) whereas 16 use a code law legal system. In order to test our third hypothesis, we divide our sample banks into two clusters according to Leuz *et al.* (2003)[10]. As indicated in Table 3, all countries in the first cluster have a common-law tradition except Norway. Hong Kong, Malaysia, and Singapore in this cluster were formerly under British rule and have inherited parts of the Anglo-Saxon institutional framework. Leuz *et al.* (2003) named the first cluster as 'outsider economy' that is characterized by large stock markets, low ownership concentration, extensive outsider rights, high disclosure, and strong legal enforcement.

In the second cluster, all countries have a code-law tradition with the exception of Ireland and South Africa. This cluster consists of the Northern European, Scandinavian and several Asian countries. The second cluster show significantly smaller stock markets, higher ownership concentration, weaker investor protection, lower disclosure levels, and weaker enforcement, which is referred to as 'insider economy' (Leuz *et al.*, 2003).

[10] Leuz *et al*. (2003) performed the cluster analysis based on nine institutional variables from La Porta et al. (1997, 1998). The variables are standardised to z-scores and then a k-means cluster analysis is conducted.

[Insert Table 3]

5.2 Fair value accounting and predictability of future earnings and future cash flows

Table 4 reports the regression results to test hypotheses 1a and 1b regarding the association between fair value exposure and the ability of current earnings (*EBTt)* to predict future earnings (EBT_{t+1}) and future cash flows (CF_{t+1}) respectively. Model 1 shows that EBT_{t+1} is positively and significantly associated with current EBT_t at the 1% level (coefficient =0.272, t-stat =4.42, p =0.000), consistent with the results reported in prior studies (Altamuro and Beatty, 2010). The coefficient of interest for the test of hypothesis 1(a) is the interaction variable between fair value exposure and current year earnings (FVE_t*EBT_t). The coefficient is positive and statistically significant at 5% level (coefficient = 0.924, t-stat= 2.44, p = 0.016). Therefore, hypothesis 1a in the null form is rejected. That is, the proportion of financial instruments that are measured at fair value enhances the ability of earnings to predict one year ahead earnings.

Model (2) in Table 4 shows that current year earnings (EBT_t) are predictive of future cash flows and the result is statistically significant at the 1% level (coefficient =0.475, t-stat= 4.86, p = 0.000). Also, the coefficient on the variable of interest, FVE_t*EBT_t, is positive and statistically significant at the 5% level (coefficient=1.805, t-stat=2.18, p = 0.031), suggesting that current year earnings based on a more fair value-oriented accounting system are more predictive of one year ahead cash flows. This result enables us to reject hypothesis 1b.

Overall, the evidence presented in Table 4 suggests that increased exposure to fair values in financial reporting enhances the ability of earnings to predict future earnings and cash flows. Specifically, after controlling for current period pre-tax earnings, the proportion of banks' financial instruments at fair value has a positive moderating effect on the predictive ability of current earnings.

[Insert Table 4]

5.3 The predictive ability of alternative fair value measurement inputs

Next, we examine the impact of fair value hierarchy classification choices on the ability of earnings to predict future cash flows and future earnings. More precisely, we investigate if the usefulness of fair values in improving the predictive ability of earnings is distinct between the non-discretionary fair value component (Level 1 assets) and the discretionary fair value components (Level 2 and Level 3 assets). Results for models (3) and (4) are reported in Table 5. Again, results continue to show that current year pre-tax earnings are associated with future earnings (coefficient= 0.240, t-stat = 3.93, p = 0.000) and future cash flows (coefficient=0.608, t-stat=6.55, p = 0.000).

Model (3) in Table 5 shows that L1*EBT has a positive and statistically significant association with one-year ahead earnings (coefficient t= 0.650, t-stat = 3.15, p = 0.002). However, the coefficient on L23*EBT is statistically significant and negative (coefficient = -1.12, t-stat = -3.49, p = 0.001). Similarly, model (4) in Table 5 reports that the coefficient on L1*EBT is statistically significant and positive (coefficient = 0.373, t-stat = 2.69, p = 0.008) while that on L23*EBT is statistically significant and negative (coefficient = -0.868, t-stat = -3.91, p = 0.000). The results reported in this section suggest that net Level 1 assets enhance earnings persistence and the ability of current earnings to predict future cash flows measured one year ahead. Whereas, discretionary fair values based on managerial assumptions (net Level 2 and net Level 3 assets) are found to weaken the predictive power of current earnings with respect to future earnings/cash flows. These results are consistent with our prediction that measurement error and management bias contained in discretionary fair values measurements (Level 2 and Level 3 assets) can constrain the ability to predict future operating performance (Landsman, 2007; Barth, 2006). Hypotheses 2a and 2b are therefore supported.

[Insert Table 5]

5.4 The impact of institutional structures on the predictive ability of discretionary fair values

Previous studies provide evidence that the strength of the institutional structures across countries can constrain earnings management behaviours and enhance financial reporting transparency (Ball *et al.*, 2000; Ball *et al.*, 2003; Leuz *et al.*, 2003; Shen and Chih, 2005). Since Level 2 and Level 3 assets are subjectively determined by managers, we investigate if the predictability of such assets is distinct dependent on the strength of institutional structures. We repeat the analysis from models (3) and (4) with sub-samples partitioned into two clusters according to Leuz *et al.* (2003). The results are presented in Table 6.

We continue to find that current year pre-tax earnings are associated with future earnings and future cash flows. Panel A of Table 6 reports the results from the analysis of the impact of institutional structures on the ability of discretionary fair values to predict future earnings (model 3). The results for Cluster 1 show that discretionary fair values (Level 2 and Level 3 assets) improve the ability of current earnings to predict future earnings (coefficient on L23*EBT is 0.539, t-stat=2.17, p = 0.035) when sample banks operate in an 'outsider economy' which is characterised by large stock markets, low ownership concentration, extensive outsider rights, high disclosure, and strong legal enforcement. However, results for cluster 2 show that discretionary fair values (Level 2 and Level 3 assets) weaken the ability of current earnings to predict future earnings (coefficient on L23*EBT is -1.819, t-stat=-5.32, p = 0.000) when sample banks operate in countries with markedly smaller stock markets, higher ownership concentration, weaker investor protection, lower disclosure levels, and weaker enforcement.

Panel B of Table 6 reports the results from the analysis of the impact of institutional structures on the ability of discretionary fair values to predict future cash flows. The results are similar as those reported in Panel A. Results for Cluster 1 show that discretionary fair values (Level 2 and Level 3 assets) improve the ability of current earnings to predict future earnings (coefficient on L23*EBT = 0.520,

t-stat=2.05, p = 0.046) when sample banks operate in an 'outsider economy'. Results for Cluster 2 continue to show that discretionary fair values (Level 2 and Level 3 assets) weaken the ability of current earnings to predict future earnings (coefficient on L23*EBT = -0.567, t-stat=-1.81, p = 0.073) when sample banks operate in countries with comparatively poorer institutional structures.

In summary, the results reported in Table 6 support the argument that countries with strong investor protection (for example, 'outsider economy') can help to limit insiders' ability to acquire private control benefits, which reduces their incentives to mask firm performance. Strong institutional structures also help to increase the transparency and reliability of discretionary fair values (Level 2 and Level 3 assets), which in turn enhances the earnings persistence and cash flow predictability. The results are also consistent with the argument that when institutional structures are weak (for example, 'insider economy'), manager may use their discretion with respect to fair values to manipulate earnings, making the current earnings a poor predictor of future operating performance. Therefore, the coefficient on L23*EBT becomes negative when institutional structures are weak.

5.5 Robustness tests

We perform a number of additional tests to provide robustness to the main results. First, following Song *et al.* (2010), we test whether the results could be confounded by bank size (measured as nature logarithm of total assets) and Tier 1 capital ratio (downloaded from the *Bankscope*). We add these two characteristics as separate independent variables in the regressions. We continue to reach the same conclusions, indicating that results are not driven by differences in bank size or capital ratio. Second, following Song *et al.* (2010), we test whether the bank's growth factor alters the results. Specifically, we control for 'growth in total assets' and 'growth in total loans' and results remain unchanged. Third, to ensure that smaller countries with fewer observations do not drive the results, our models have been re-estimated excluding those having only four or eight bank-year observations. The results are

similar to the results reported in all tables, both in terms of the sign of the coefficients and their statistical significance.

6. Conclusion

Based on a sample of international (non-U.S.) banks from 24 countries during 2009-2012, we test whether the increasing use of fair values in current financial reporting enhances earnings persistence and ability of earnings to predict future cash flows. We find that the increasing use of fair values for balance-sheet financial instruments enhances the ability of current earnings to predict future earnings and cash flows. Furthermore, we provide evidence that fair value hierarchy classification choices affect the ability of earnings to predict future cash flows and future earnings. More precisely, we find that the non-discretionary fair value component (Level 1 assets) improves the predictability of current earnings whereas the discretionary fair value components (Level 2 and Level 3 assets) weaken the predictive power of earnings. In addition, we find a consistent and strong association between factors reflecting country-wide institutional structures and predictive power of fair values based on discretionary measurement inputs (Level 2 and Level 3 assets and liabilities). Specifically, strong institutional structures help to increase the transparency and reliability of discretionary fair values (Level 2 and Level 3 assets), which in return enhances the earnings persistence and cash flow predictability.

Our research is timely and relevant. As a result of the recent banking crisis, particular emphasis has been placed on fair value based accounting systems. The current debate on the use of fair value accounting focuses on potentially increased relevance (see Barth, 1994; Petroni and Wahlen, 1995; Barth *et al.*, 1996; Eccher *et al.*, 1996; Nelson, 1996; Carroll *et al.*, 2003; Schrand, 1997; Venkatachalam, 1996; Barth, 1991; Amir, 1993) weighed against issues of reliability. However, it has failed to consider the potential impact on the predictive objective of accounting.

Our findings have important implications for standard setters and contribute to the debate on the use of fair value accounting. Our research results support claims by the

FASB and the IASB that fair value accounting meets the objectives of financial reporting by providing decision-useful information. That is, the use of fair value helps in the prediction of earnings and an assessment of the amounts, timing and uncertainty of future cash flows. However, we also show that the predictive power of fair values is dependent on their reliability (for example, Level 1 versus Level 2/Level 3 assets). Moreover, we provide evidence that institutional factors play an essential role in enhancing the reliability of discretionary fair value estimates which in return increases the informativeness of those accounting information.

We acknowledge that our study has some limitations. For example, it we focus on top non-U.S. banks which are larger and have better performance than smaller banks. Thus our results may not be generalisable to smaller banks or to banks in the U.S. Also, care should be exercised in generalising our findings to firms beyond the banking industry. Extending our study to a larger sample of banks of differing sizes and to firms in other sectors are important avenues for future research.

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Table 1
Panel A: Sample Selection

Original Sample (bank-year observations)	1000
Less:	
Missing values on dependent and independent variables	380
Missing institutional variables	40
Top and bottom 1% of control variables	28
Number of observations used in the tests	**552**

Table 1(a) presents the sample selection procedures.

Panel B: Sample banks by country

Country	Bank	Bank-Year
Austria	4	8
Australia	7	28
Belgium	6	24
Brazil	2	8
Canada	5	20
Chile	3	12
Germany	18	72
Denmark	1	4
Spain	6	24
Finland	1	4
France	17	68
UK	19	76
Greece	2	8
Hong Kong	7	28
Ireland	2	8
Italy	10	40
South Korea	7	28
Malaysia	2	8
Netherlands	6	24
Norway	4	16
Sweden	2	10
Singapore	4	16
Taiwan	1	4
South Africa	3	12
TOTAL	**138**	**552**

Table 1(b) presents the sample distributions by country.

Table 2: Descriptive statistics for earnings persistence and cash flow predictability tests

Variable	N	Mean	Stand. Dev.	1st Quartile	Median	3rd Quartile
EBT_{t+1}	552	0.004	0.012	0.001	0.004	0.009
CF_{t+1}	552	0.008	0.013	0.004	0.008	0.013
EBT_t	552	0.004	0.015	0.001	0.004	0.010
FVE_t	552	0.100	0.170	0.020	0.070	0.150
L1	552	0.070	0.136	0.009	0.045	0.096
L2	552	0.020	0.118	0.002	0.008	0.039
L3	552	0.010	0.072	0.000	0.002	0.006

Table 2 presents the descriptive statistics of test variables. The full sample consists of 552 bank-year observations for the fiscal years 2009 to 2013 across 24 countries. Financial accounting information is obtained from the Bankscope Database. Fair value measurement hierarchy information is hand-collected from the annual reports. EBT_{t+1} is measured as earnings before taxes during the year t+1 scaled by total assets at the beginning of the year. CF_{t+1} is calculated as earnings before taxes and the loan loss provisions during the year t+1 scaled by total assets at the beginning of the year. EBT_t is earnings before taxes scaled by total assets at the beginning of the year. FVE_t is calculated as the total fair valued financial instruments over total assets; *L1*, *L2* and *L3* are calculated as net Level 1, net Level 2 and net Level 3 assets divided by total assets, respectively.

Table 3: Summary of institutional characteristics of sample banks

Country	Legal Religion	Legal Tradition	Outside Investor Rights	Legal Enforcement	Ownership Concentration	Important of Equity Market	Disclosure Index
Cluster 1							
Australia	English	Common	4	9.3	0.28	24	75
Canada	English	Common	5	9.58	0.24	23.3	74
UK	English	Common	5	9.4	0.15	25	78
Hong Kong	English	Common	5	8.77	0.54	28.8	69
Malaysia	English	Common	4	7.71	0.52	25.3	76
Norway	Scandinavian	Code	3	9.76	0.31	20.3	74
Singapore	English	Common	4	8.99	0.53	28.8	78
Cluster 2							
Austria	German	Code	2	9.47	0.51	7	54
Belgium	French	Code	0	9.49	0.62	11.3	61
Brazil	French	Code	3	6.52	NA	16.3	54
Chile	French	Code	5	6.77	NA	NA	52
Germany	German	Code	1	9.37	0.5	5	62
Denmark	Scandinavian	Code	2	9.8	0.4	20	62
Spain	French	Code	4	7.87	0.5	7.2	64
Finland	Scandinavian	Code	3	9.8	0.34	13.7	77
France	French	Code	3	8.97	0.24	9.3	69
Greece	French	Code	2	6.84	0.68	11.5	55

Ireland	English	Common	4	8.74	0.36	17.3	NA
Italy	French	Code	1	7.95	0.6	6.5	62
South Korea	German	Code	2	6.71	0.2	11.7	62
Netherlands	French	Code	2	9.87	0.31	19.3	64
Sweden	Scandinavian	Code	4	9.92	0.28	16.7	83
Taiwan	German	Code	3	8.08	0.14	13.3	65
South Africa	English	Common	5	6.7	0.52	16.3	70

Table 3 presents a summary of institutional characteristics of sample banks. The classification of the Legal Origin and the Legal Tradition are based on La Porta *et al.,* (1998). Code (Common) indicates a code-law (common-law) country. The Outside Investor Rights variable is the anti-director rights index created by La Porta *et al.* (1998); it is an aggregate measure of minority shareholder rights and ranges from zero to five. Legal Enforcement is measured as the mean score across three legal variables used in La Porta et al. (1998): (1) the efficiency of the judicial system, (2) an assessment of rule of law, and (3) the corruption index. All three variables range from zero to ten. Ownership Concentration is measured as the median percentage of common shares owned by the largest three shareholders in the ten largest privately owned non-financial firms (La Porta *et al.,* 1998). The Importance of Equity Market is measured by the mean rank across three variables used in La Porta *et al.* (1997): (1) the ratio of the aggregate stock market capitalization held by minorities to gross national product, (2) the number of listed domestic firms relative to the population, and (3) the number of IPOs relative to the population. Each variable is ranked such that higher scores indicate a greater importance of the stock market. The Disclosure Index measures the inclusion or omission of 90 items in the 1990 annual reports (La Porta *et al*., 1998); NA: it is not available in our sample.

Table 4: Predictability of future earnings and future cash flows based on the level of financial instruments reported at fair value

Independent Variable	Predicted Sign	Model (1) Earnings (EBT_{t+1}) Coefficient* (p-value)	Model (1) Earnings (EBT_{t+1}) T-stat	Model (2) Cash Flows (CF_{t+1}) Coefficient* (p-value)	Model (2) Cash Flows (CF_{t+1}) T-stat
Intercept		0.009*** (0.000)	6.10	0.010*** (0.000)	6.18
EBT	+	0.272*** (0.000)	4.42	0.475*** (0.000)	4.86
FV	+/-	-0.012 (0.122)	-1.55	-0.017** (0.000)	-2.25
FV*EBT	+	0.924** (0.016)	2.44	1.805** (0.031)	2.18
Year dummy		Yes		Yes	
Country dummy		Yes		Yes	
Observations		552		552	
Adj. R^2		56.53%		71.37%	

Table 4 presents the regressing results for models (1) and (2).

EBT_{t+1} is measured as earnings before taxes during the year t+1 scaled by total assets at the beginning of the year. CF_{t+1} is calculated as earnings before taxes and the loan loss provisions during the year t+1 scaled by total assets at the beginning of the year. EBT_t is earnings before taxes scaled by total assets at the beginning of the year. FVE_t is calculated as the total fair valued financial instruments over total assets; *FV*EBT* is an interaction variable of FVE and EBT.

***, **, * indicate statistical significance at the 1, 5, or 10 % level, respectively.

Table 5: Predictability of future earnings and future cash flows from alternative fair value measurement inputs

Independent Variable	Predicted Sign	Model (3) Earnings (EBT_{t+1}) Coefficient* (P value)	Model (3) Earnings (EBT_{t+1}) T-stat	Model (4) Cash Flows (CF_{t+1}) Coefficient* (P value)	Model (4) Cash Flows (CF_{t+1}) T-stat
Intercept		0.010*** (0.000)	7.39	0.009*** (0.000)	6.95
EBT	+	0.240*** (0.000)	3.93	0.608*** (0.000)	6.55
L1	+/-	-0.004 (0.255)	-1.14	-0.007*** (0.262)	-1.13
L23	+/-	0.007*** (0.395)	0.85	0.004*** (0.574)	0.56
L1*EBT	+	0.650*** (0.002)	3.15	0.373*** (0.008)	2.69
L23*EBT	-	-1.12*** (0.001)	-3.49	-0.868*** (0.000)	-3.91
Year dummy		Yes		Yes	
Country dummy		Yes		Yes	
Observations		552		552	
Adj. R^2		64.5%		55.6%	

Table 5 presents the regressing results for models (3) and (4).

EBT_{t+1} *L1* is calculated as net Level 1 assets divided by total assets; *L23* is calculated as the sum of net Level 2 and net Level 3 divided by total assets. Other variables are as defined in Table 4.

***, **, * indicate statistical significance at the 1, 5, or 10 % level, respectively.

Table 6

Panel A: The impact of institutional structures on the ability of discretionary fair values to predict future earnings (Model 3)

		Cluster 1 (Outsider economy)		Cluster 2 (Insider economy)	
Independent Variable	**Predicted Sign**	**Coefficient* (p-value)**	**T-stat**	**Coefficient* (p-value)**	**T-stat**
Intercept		0.011 (0.000)	5.337	0.002 (0.212)	1.26
EBT	+	0.101 (0.130)	1.54	0.199** (0.015)	2.48
L1	+/-	-0.016* (0.095)	-1.70	-0.001 (0.888)	-0.14
L23	+/-	-0.006 (0.500)	-0.68	0.015** (0.027)	2.25
L1*EBT	+/-	0.243** (0.033)	2.19	0.697** (0.015)	2.48
L23*EBT	+/-	0.539** (0.035)	2.17	-1.819*** (0.000)	-5.32
Year dummy		Yes		Yes	
Country dummy		Yes		Yes	
Observations		210		342	
Adj. R		66.8%		68.7%	

Variables as defined in Tables 4 and 5.

***, **, * indicate statistical significance at the 1, 5, or 10 % level, respectively.

Table 6 Panel B: The impact of institutional structures on the ability of discretionary fair values to predict future cash flows (Model 4)

		Cluster 1 (Outsider economy)		Cluster 2 (Insider economy)	
Independent Variable	**Predicted Sign**	**Coefficient* (p-value)**	**T-stat**	**Coefficient* (p-value)**	**T-stat**
Intercept		0.013*** (0.000)	9.73	0.012*** (0.000)	3.79
EBT	+	0.036 (0.664)	0.44	0.604** (0.000)	5.55
L1	+/-	0.006 (0.403)	0.84	-0.020** (0.047)	-2.01
L23	+/-	0.018 (0.001)	3.60	-0.020* (0.072)	-1.82
L1*EBT	+/-	0.248*** (0.010)	2.69	1.377*** (0.010)	2.49
L23*EBT	+/-	0.520** (0.046)	2.05	-0.567* (0.073)	-1.81
Year dummy		Yes		Yes	
Country dummy		Yes		Yes	
Observations		210		342	
Adj. R		75.4%%		74.5%%	

Variables as defined in Tables 4 and 5.

***, **, * indicate statistical significance at the 1, 5, or 10 % level, respectively.